R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE SPECIFICATION

The specification has been amended to add section headings, and to make some minor grammatical improvements.

In addition, the specification has been amended to change each occurrence of "torque" to "load torque." It is evident from the description at page 3, line 12 to page 4, line 21, that the torque described is a result of the pressure (P1 to P2) in the pressure tank and thus represents the load (as correctly understood by the Examiner - see page 3, lines 9-10 of the Office Action).

Still further, the specification has been amended to more clearly refer to the curves shown in Figs. 4 and 5 as curves representing the relation between load torque and rotational speed of a motor.

Yet still further, the specification has been amended to make some minor corrections to better accord with Figs. 4 and 5, by changing: "$\Delta M_K = (M_{1A} - M_{2A})$" to "$\Delta M_A = (M_{1A} - M_{2A})$" at page 3, line 33, "N2" to "N_2" and "N1" to "N_1" at page 4, lines 17 and 20, and "$\Delta M_K = (M_{1A} - M_{2A})$" to "$\Delta M_K = (M_{1K} - M_{2K})$" at page 4, line 20.

The abstract has been amended to avoid the use of the word "said," as required by the Examiner, and to make a few additional improvements.

No new matter has been added, and it is respectfully requested that the amendments to the specification be approved and entered, and that the objection to the abstract be withdrawn.

THE DRAWINGS

Fig. 4 has been amended to change M_1 and M_2 to M_{1A} and M_{2A}, and to translate "Varvtal" to "Speed," in accordance with the disclosure relating to Fig. 4.

Fig. 5 has been amended to change M_1 and M_2 to M_{1K} and M_{2K}, and to translate "Varvtal" to "Speed," in accordance with the disclosure relating to Fig. 5.

Submitted herewith are corrected sheets of formal drawings which incorporate the amendments and annotated sheets showing the changes made thereto.

No new matter has been added, and it is respectfully requested that the amendments to the drawings be approved and entered.

THE CLAIMS

Claim 1 has been amended to incorporate the subject matter of claims 2 and 3, which have been canceled. In addition,

claim 1 has been amended to change “torque” to “load torque.” It is evident from the description at page 3, line 12 to page 4, line 21, that the torque described is a result of the pressure (P1 to P2) in the pressure tank and thus represents the load (as correctly understood by the Examiner - see page 4, lines 2-3 of the Office Action).

In addition, the claims have been amended to make some minor improvements to put them in better form for issuance in a U.S. patent.

No new matter has been added, and it is respectfully requested that the amendments to the claims be approved and entered.

In view of the amendments to the specification changing “torque” to “load torque,” it is respectfully requested that the rejection under 35 USC 112, first paragraph, be withdrawn.

And in view of the amendments to claim 1 changing “torque” to “load torque,” it is respectfully requested that the rejection under 35 USC 112, second paragraph, be withdrawn.

THE PRIOR ART REJECTION

Claims 1-6 were rejected under 35 USC 103 as being obvious in view of the combination of USP 4,492,526 (“Hartwig et al”) and USP 7,081,698 (“Burkholder et al”). This rejection, however, is respectfully traversed.

The problem identified and solved by the present invention is to avoid the drawbacks of the prior art such as Hartwig et al. When using a typical asynchronous motor to drive a compressor, the pressure container is rapidly filled to its maximum pressure. When consumption is high or when the pressure container is relatively small, the motor will be frequently switched on to fill the container and switched off again when the container is full at its maximum pressure. These frequent motor starts will shorten the useful life of the motor considerably. See the background section and page 3, line 28 to page 4, line 12 of the present application.

By contrast, according to the present invention as recited in amended independent claim 1, a helical screw rotor compressor is provided which is adapted to work against a pressure container whose pressure is allowed to vary between a lowest pressure P2 and a highest pressure P1, wherein the compressor is driven by an electric motor. According to claim 1, in an operating range defined by a pressure interval of the pressure container, the motor has a characteristic such that halving of a load torque of said motor will result in an increase of at least six percent in a speed of said motor. In addition, according to claim 1, the electric motor has a characteristic such that halving of the load torque of said motor will result in an increase in the speed of

said motor of at most 100 percent. And according to claim 1, the electric motor is a commutator motor.

By using an electric motor as recited in claim 1, the frequent starting and stopping of the motor is eliminated. Due to the significant increase in rpm, or motor speed, necessary for increasing the motor load torque from M_{2k} to M_{1k} (see Fig. 5), it is necessary for the compressor to work over a significantly longer period of time to achieve maximum pressure than the time required by an asynchronous motor. Accordingly, it will take far longer to achieve the tank pressure P1 when the compressor is driven by a commutator motor. During this longer compressor working time, the volume of air consumed is much greater than when a compressor is driven by an asynchronous motor (with which the maximum tank pressure P1 is reached much more quickly). As a result, the number of starts involved when using a commutator motor is far less than the number of starts involved when driving the same compressor with an asynchronous motor in order to maintain the tank pressurized. See the disclosure in the specification at page 4, lines 22-33.

Thus, using a motor as recited in claim 1 instead of a typical asynchronous motor achieves significant advantageous effects, whereby, for example, a smaller motor can be used. It is respectfully submitted that the Examiner's suggested reason ("to provide better motor efficiency and power output") is thus

not relevant to selection of a motor as according to the present invention.

In view of the foregoing, it is respectfully submitted that amended independent claim 1 and claims 4-6 depending therefrom clearly patentably distinguish over Hartwig et al and Burkholder et al, taken singly or in combination consistent with the respective teachings thereof, under 35 USC 103.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned for prompt action.

Respectfully submitted,

/Douglas Holtz/

Douglas Holtz
Reg. No. 33,902

Frishauf, Holtz, Goodman & Chick, P.C.
220 Fifth Avenue - 16th Floor
New York, New York 10001-7708
Tel. No. (212) 319-4900

DH:iv/bl
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